



United States Department of the Interior
FISH AND WILDLIFE SERVICE
911 NE 11th Avenue
Portland, Oregon 97232-4181



IN REPLY REFER TO:
NWRS/NCR/Fire

MAR 23 2009

Memorandum

To: Regional Director, Region 1
Portland, Oregon

From: Regional Chief, National Wildlife Refuge System
Portland, Oregon

Carolyn A. Bohan

Subject: Approval of Updated Fire Management Plans for
Little Pend Oreille and Turnbull National Wildlife Refuges

The Department of Interior policy (910 DM 1-3) and Fish and Wildlife Service (Service) policy (621 FW 1.1) require that Service lands with burnable vegetation have an approved Fire Management Plan. The Inland Northwest National Wildlife Refuge Complex has updated the fire management plans for Little Pend Oreille and Turnbull National Wildlife Refuges. The updated fire management plans continue the range and extent of activities described in previous plans, but have been updated to be consistent with new interagency formatting directives.

Consistent with the February 2009 Fire Management Handbook, the subject fire management plans have been forwarded for your review and approval.

Please contact Pam Ensley (503) 231-6174 or Brett Fay (503) 872-2756 if you require additional information on these fire management plans.

Attachments



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Inland Northwest National Wildlife Refuge Complex
Kootenai, Little Pend Oreille, and Turnbull Refuges
26010 South Smith Road
Cheney, Washington 99004
(509) 235-4723

February 27, 2009

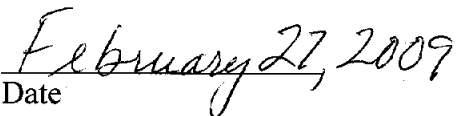
Memorandum

Subject: Environmental Action Statement for Update of Little Pend Oreille and Turnbull National Wildlife Refuge Management Plans

The Inland Northwest National Wildlife Refuge Complex has updated the Fire Management Plans for Little Pend Oreille and Turnbull refuges with the Complex. The updated fire management plans have been reformatted to be consistent with new interagency formatting directives. These updated plans continue the range and extent of activities described in the previous fire management plans.

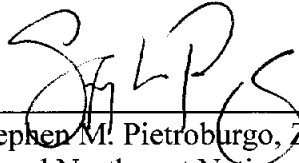
As such, updating the Little Pend Oreille National Wildlife Refuge Fire Management Plan and Turnbull National Wildlife Refuge Fire Management Plan qualifies as a categorical exclusion per 516 DM 8.5 C(10): "The issuance of new or revised site, unit, or activity-specific management plans for public use, land use, or other management activities when only minor changes are planned. Examples could include an amended public use plan or fire management plan."



Project Leader

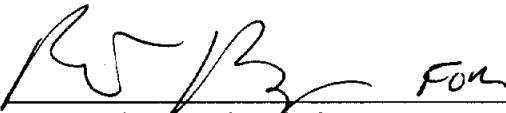

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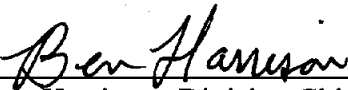
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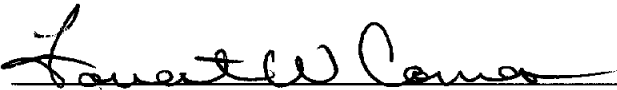
Signatures below reference the
2009 Inland Northwest NWR Complex
Fire Management Plan for Little Pend Oreille NWR

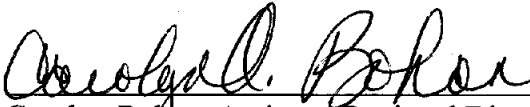
Prepared by:  2-26-2009
Stephen M. Pietroburgo, Zone Fire Management Officer Date
Inland Northwest National Wildlife Refuge Complex (LPO NWR)

Submitted By:  2/26/09
Lisa Langelier, Project Leader Date
Inland Northwest, National Wildlife Refuge Complex

Reviewed by  FOR 3/4/09
Pam Ensley, Regional Fire Management Coordinator Date
Pacific Region, U.S. Fish and Wildlife Service

Reviewed by  3/12/09
Ben Harrison, Division Chief Natural and Cultural Date
Resources
Pacific Region, U.S. Fish and Wildlife Service

Reviewed by  3/12/09
Forrest Cameron, Fish and Wildlife Administrator Date
Refuge Supervisor
Pacific Region, U.S. Fish and Wildlife Service

Reviewed by  3/23/09
Carolyn Bohan, Assistant Regional Director, Refuges Date
Pacific Region, U.S. Fish and Wildlife Service

Approved:  3/24/09
FOR: Robyn Thorson, Regional Director Date
Pacific Region, U.S. Fish and Wildlife Service

Little Pend Oreille Fire Management Plan

1. Introduction

1.1 Purpose

This plan is written to meet Department and Service requirements that every area with burnable vegetation must have an approved Fire Management Plan (FMP). It enables the Refuge to meet a Service requirement that Refuges review FMPs annually and revise them coincidentally with Refuge Comprehensive Conservation Plans or when significant land use changes are proposed. It satisfies Federal Wildland Fire Management Policy requirements 910 DM 1-3 and 621 FW 1.1.

The goal of wildland fire management is to plan and implement actions that help accomplish the mission of the National Wildlife Refuge System, which is to administer a national network of lands and waters for the conservation, management, and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

This FMP integrates all wildland fire management and related activities within the context of an approved Comprehensive Conservation Plan (CCP). It defines a program to manage wildland fires and to assure that wildland fire management goals and components are coordinated.

1.2 General Description

The Little Pend Oreille National Wildlife Refuge is located in the mountainous northeastern portion of Washington State with an elevation range of 1800 feet on the west side to 5600 feet on the east boundary (Figure 1). The refuge is predominantly located in Stevens County with a small portion of its eastern boundary in Pend Oreille County. The Refuge covers 41,593 acres and is dominated by mixed-conifer montane forest. Additional tracts of land managed by the Little Pend Oreille NWR and located outside its administrative boundary are the Kaniksu Unit (716 acres), the Springdale (Norris) Unit (55 acres) and the Cusick Unit (254 acres). Kaniksu and Springdale lie within Stevens County and the Cusick Unit is situated in Pend Oreille County. The Okanagan unit 35 acres and is situated in Okanagan County.

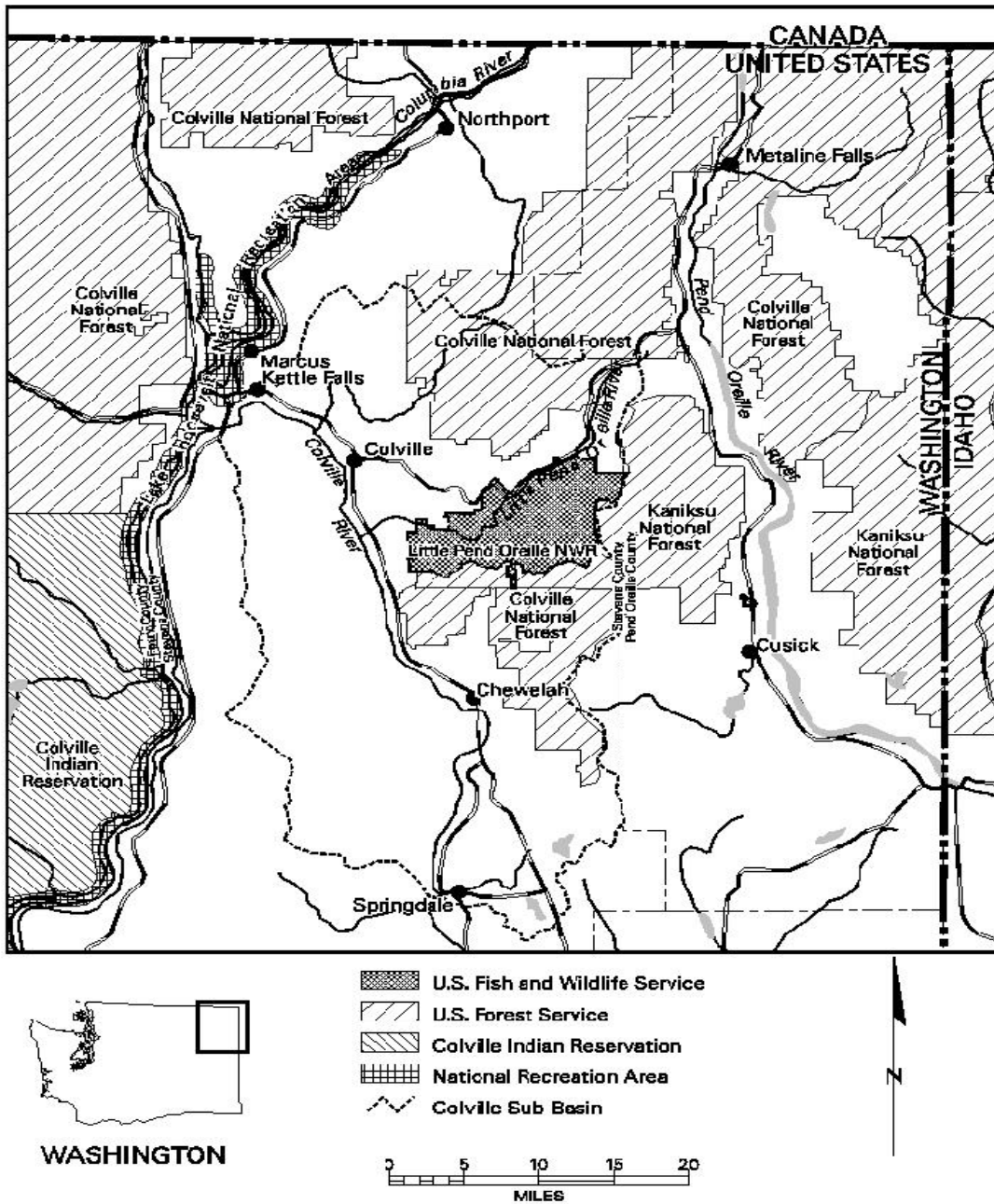


Figure 1 – Vicinity Map

Much of the adjacent land surrounding the refuge on the northern and western boundaries is in state and private ownership while the lands to the south and east are dominated by lands managed by the USDA Colville National Forest and private timber companies.

Social, political and economic resources center on the town of Colville which serves as the Stevens County seat of government. Most livelihoods in this area are supported by service and light industry, state and federal jobs, cattle ranching, wheat farms and the timber industry.

CLIMATE

In addition to elevation, other principle climatic influences occur from weather systems which originate over the North Pacific and continental air masses from the Inland Basin to the south and the Canadian heartland to the north. Due to the prevailing westerly winds, the systems from the North Pacific dominate during most of the year which helps to moderate temperatures year round. However, occasional blasts from the Canadian Arctic do spill over the Northern Rockies from the northeast and can govern local weather for extended durations. When these arctic air masses occur it results in an increase in cloudiness, precipitation, and during the warmer months, an increase in lightning activity greater than that of most areas east of the Cascades. During the winter months temperatures can be sub-freezing for prolonged periods.

The area generally receives between 38 to 64 cm (15 to 25 inches) of precipitation per year in the valleys with up to 40 inches and greater at higher altitudes. Most of this moisture is received from mid September through mid January. The driest period is late June through early September.

Low elevation summer temperatures range from the upper 40's to the middle 80's with an expected decrease of about 3 degrees F for each 1000 feet of increase in elevation. Maximum temperatures exceed 95 degrees 5 to 20 days each summer and 100 degrees on 1 to 5 days. Average winter temperatures range from 10 degrees to slightly above freezing with extremes going down to -30 and -40 degrees F. The daily temperature range in the summer is about 30 degrees and about half that in the winter.

The average daily variation in relative humidity during the winter is from 88% at night to 78% in the afternoon; 80% to 45% in the spring and fall; and 65% to 25% in the summer.

AQUATIC RESOURCES

LPO aquatic habitats include rivers, streams, and lakes, ponds, and springs. The Little Pend Oreille River flows diagonally across the refuge from the northeast to the southwest for 13 miles. Except for some private in-holdings, the refuge encompasses the entire Bear Creek subwatershed which is a major tributary of the Little Pend Oreille River. Six other smaller watersheds, ultimately end up in the LPO river and have either their origins on the refuge, or a large portion of their courses flow through the Refuge. From the southwest to northeast they are Norman, Narcisse, Squaw, Cedar, Scrabblers and Olsen Creeks. Two streams, which have their headwaters located on the Refuge, but drain into the Colville River, are Slide Creek and Moran Creek on the extreme southwest corner of the Refuge. Many other seasonal streams and high quality springs can be found on the Refuge.

Several small lakes are dispersed throughout the Refuge with the two largest being McDowell and Bayley Lakes. Each of these lakes empty into a chain of beaver ponds that provide habitat for waterfowl and moose. Potter's Pond, Bayley and McDowell Lakes provide recreational fishing opportunities as well. Bayley Lake in particular, is very productive and is connected to Potter's Pond by an outfall channel that has become a spawning stream for the lake's trout.

GEOLOGY AND SOILS

The Little Pend Oreille National Wildlife Refuge is located in the eastern portion of the geographic region known as the Okanogan Highlands Province which stretches from the Methow River Valley in the west to the western Slope of the Northern Rocky Mountains in the east, and the Columbia River Breaks in the south to the upper reaches of the Kettle River in British Columbia, Canada.

The land is characterized by wide, flat north/south river valleys surrounded by mountainous terrain distinguished by moderate slopes and broad rounded summits. The current configuration of this region was formed during the Pleistocene Epoch when the entire province was repeatedly covered and uncovered by glacial ice. Deposits of glacial drift are common and this is especially true of the land forms north of Spokane where the refuge is located. Underlying these glacial masses in the eastern parts of the province are primarily quartzite, graywacke, slate, argillite, phyllite, greenstone and some limestone as deposited during the Paleozoic Era.

In this province the general classes of soils are closely related to the elevations at which they occur. Granitic soils are common away from the river valleys in the mountains and generally fall into Xerocherpts (Regosols) and Cryorthods (Podzols). Xerocherpts have very little profile development and are most often cold, acid, stony or gravelly loams of about 3.5 feet in depth. Cryorthods contain higher contents of silt and loam and greater profile development containing both A2 and B2 horizons with high iron contents.

The lower river valleys reflect drier conditions and transition from forest to grassland communities. Glacial till and Haploxerolls (Chernozem soils) dominate. Soil texture is typically sandy loam and loam with more definition in the structure containing both A and B horizons. (From Natural Vegetation of Oregon and Washington 1973)

VEGETATION

The major terrestrial vegetation types at LPO consist of riparian woodlands, upland forest, old fields, and meadows. Other areas, such as cliffs and talus slopes, represent a small portion of the refuge.

Riparian Woodlands

Interspersed throughout the refuge are well developed stands of hardwoods with affinities for moist sites. These woodlands include quaking aspen (*Populus tremuloides*), mountain alder (*Alnus tenuifolia*), sitka alder (*Alnus sinuata*), willow (*Salix* spp.), black cottonwood (*Populus trichocarpa*), Douglas maple (*Acer glabrum douglasii*), white birch (*Betula papyrifera*) and water birch (*Betula* spp.).

Hardwood stands are attractive to wildlife for their nutritious forage, thick cover, available water and diversity of plant species. This attraction was similarly felt by the early settlers and as a

result most of these hardwood forests have been altered to various degrees through clearing for home sites, farming and pastureland.

In addition to their importance to wildlife, hardwoods play a major role in stream bank stabilization and soil retention in floodplains. While dependant upon a wide array of environmental factors the sequence of re-colonization of stream banks often begins with alders pioneering sand and gravel bars followed by cottonwood and aspen.

Riparian woodlands are susceptible to fire only in the driest of years. In these areas, fire tends to produce conditions favorable to the reproduction of pioneering species. With aspen in particular, fire creates conditions necessary for reproductive growth from rootstock.

Upland Forests

Old photographs, survey notes and existing remnant stands indicate that much of the Refuge was characterized by extensive stands of large, old growth ponderosa pine (*Pinus ponderosa*), Douglas-fir (*Pseudotsuga menziesii*) and western larch (*Larix occidentalis*) prior to settlement and exploitation. Impressive stands of western red cedar (*Thuja plicata*), western hemlock (*Tsuga heterophylla*) and other mixed conifer stands were also present. Records indicate that logging has occurred on the refuge since its inception with a primary objective of improving wildlife habitat, but also for sanitation and salvage. Letters in the refuge files indicate that the cedar poles cut on the refuge were so desirable that they were specifically requested by buyers from the mid-western states. Taken as a whole, the mixed-conifer forests which dominate the refuge are the most complex in the Pacific Northwest (Agee 1993).

Currently, most of the forest land is second and third-growth mixed stands with higher numbers of stems per acre and a greater percentage of shade tolerant species than naturally occurred here. This can be directly attributed to past timber harvest practices and aggressive fire suppression. The southeastern corner of the refuge contains an extensive area with old growth timber and no roads. This area comprises about 3200 acres and was once proposed as federally designated Wilderness.

The refuge is well represented by a variety of forest types from low elevation ponderosa pine on its western edge which gradually becomes higher elevation mixed stands of Douglas-fir, grand fir, lodgepole pine, western white pine, western larch, western redcedar, western hemlock, Englemann spruce (*Picea engelmannii*) and sub-alpine fir (*Abies lasiocarpa*). Also present are hardwood species as described above in the Riparian Woodlands section. For management purposes, these various forest types have been grouped into three broad classifications; A. Dry Forest; B. Moist Forest; and C. Cold Forest groups (see Figure 2 below). For further explanation of these classifications, refer to the CCP. Each of these broad forest categories represent fire regimes which may be based on a variety of factors, but for the purposes of this plan will be founded upon return intervals and vegetation communities.

FIRE ECOLOGY

Natural fire regimes are of tremendous ecological importance to the refuge, especially in light of the fact that key local species, ponderosa pine, western larch and Douglas-fir, and their associated vegetative complexes, are highly adapted to wildland fire. The continuity of fire disturbance, and by extension the fire regimes, has been interrupted in refuge forests through

nearly a century of fire suppression. Prior to pioneer settlement the low elevation ponderosa pine forests burned every 5 to 25 years. The causes of fire were both anthropomorphic and natural (lightning). High frequency, low intensity fires were essential to maintaining healthy stands of interior ponderosa pine. Fire is the dominant agent of disturbance and development in these forests. This repeated disturbance led to the ecological adaptation of various forest communities to degrees of tolerance to fire frequencies and intensities. Low elevation dry sites with greater fire frequencies favored those species which developed deep tap roots, thick exfoliating and insulating bark and good self pruning traits especially as the trees matured. This ensured that the larger, older specimens could survive progressively greater fire intensities due to their high fire resistance and wide spacing and thus, continue to provide seed for many years.

Mixed stands of Douglas-fir and other species burned at somewhat greater intervals depending upon topography, aspect, elevation and fuel type. Most of the refuge forest is dominated by Douglas-fir/mixed forest in both dry and moist settings. The natural periodicity of fire in the dry Douglas-fir is between 10 and 24 years (Agee 1993) while the moist forest is somewhat longer at 13 to 26 years.

Moist forests composed of western redcedar and western hemlock and high elevation sub-alpine fir types have the longest fire intervals. Fire may only visit these stands every 50-100 years for low to moderate intensity fires and 150 -500 years for stand replacement fires (Forested Plant Associations of the Colville National Forest 1995).

Impacts of Previous Forest Management

Aggressive fire suppression has disrupted the natural fire regime. As an example, fire records indicate that there have been 93 fires on the Refuge from 1982-2008. Of these, only one fire burned more than 14 acres and only three burned more than 4 acres. This, coupled with pre-1994 harvesting methods that selectively removed older, large trees has dramatically changed Refuge forests. The two most serious problems to forest habitat management are unnaturally high fuel loadings and conversion of forests from highly fire resistant and fire dependant species to shade tolerant, fire sensitive species. Dealing with these two problems is the current focus of forest habitat management on the refuge.

Old Fields; Homestead Pastures and Agricultural Fields

There are approximately 58 man-made openings within the refuge totaling 631 acres. The largest contiguous openings are a legacy from the homesteading days when areas were cleared for farming and grazing operations. Primarily due to grazing, these openings still exist, but are being reclaimed by the forests which once occupied them.

In terms of fire management, these old fields are dominated by grass fuels which are quite flashy during the height of fire season and can be readily burned during the fall or early spring prescribed fire season. Although these fields are not naturally occurring, they add habitat diversity. Hence the CCP and the Habitat Management Plan specify maintaining some of them through the use of fire.

Natural Openings and Meadows

Although rare (96.5 acres), natural openings can be found, chiefly on drier ridge tops but also in a few moist bottomland meadows. The majority of natural open meadows are found on the lower elevation slopes and ridges on the west side of the refuge. Grasses that dominate the meadows are Kentucky bluegrass (*Poa pratensis*), redbtop (*Agrostis alba*), orchardgrass (*Dactylis glomerata*), and timothy (*Phleum pratense*).

Other Habitats; Cliffs, Talus Slopes

Cliff Ridge and portions of the west slope of McDonald Mountain represent the refuge's most dramatic forms of this habitat. Other remote cliff and talus sites occur on Scrabbler's Peak and Blacktail Mountain. Detailed information concerning wildlife utilizing these very specific habitats is lacking, however they are very important to note as natural fire breaks, safety zones and potential hazard areas.

FISH AND WILDLIFE

Federally listed *endangered species* that may occupy the LPO Fire Management Unit:

Gray wolf (*Canis lupus*); unlikely on the 35 acre Okanagan unit in Okanagan County due to inappropriate habitat.

Federally listed *threatened species* that may occupy the LPO:

Grizzly bear (*Ursus arctos*); No reported sightings on the refuge, but is well documented nearby.

Of principal concern on this Refuge is the Canada Lynx (*Felis canadensis*). This species has specific forest habitat requirements that will dictate the nature and application of prescribed fire in areas where these animals may be impacted. Recent reports of lynx sign indicate they still occupy the Refuge. Since natural fire is infrequent in these areas, and little prescribed fire is planned for them, the impact of management fire will be minimal. However, in any given year, natural fire may have a significant impact on the available lynx habitat depending upon location, intensity and size.

Ute ladies'-tresses (*Spiranthes diluvialis*), an orchid that is federally listed as threatened, is known to be present in northern Washington. The refuge has not been adequately surveyed, so this plant is considered to be potentially present in any suitable habitat that occurs on the refuge.

Yellow-Billed Cuckoo has been documented near McDowell Lake and along the Little Pend Oreille River corridor. Yellowed Billed Cuckoo had the potential to occur in other dense riparian areas on the Refuge. Since natural fire is infrequent in these areas, and little prescribed fire is planned for them, the impact of management fire will be minimal.

Species of Concern, as designated by the USFWS:

These include Columbia spotted frog (candidate), northern goshawk, olive sided flycatcher, long-eared myotis, Pallid Townsend's big-eared bat, wolverine, redband trout and westslope cutthroat trout.

The Northern Goshawk (*Accipiter gentilis*) is of concern since there is evidence that the ever increasing stocking density of its preferred forests may be limiting its ability to hunt successfully (Reynolds, 1982). Foraging areas with diverse prey species form the largest habitat requirement for these raptors and conversion to shade tolerance is evident on the refuge. The CCP goal of creating and maintaining a greater percentage of mature forest using prescribed fire, among other techniques, will have positive benefits for goshawks.

CULTURAL RESOURCES

Use of the area within the boundaries of the Little Pend Oreille NWR by Native American Indians is not well documented. In fact, no prehistoric sites have been located within the refuge itself. This may seem unusual because of the dense population centers located on the Columbia and Pend Oreille Rivers. Evidence from ethnographic and archaeological sources suggests that native groups congregated along the major rivers to harvest salmon and trade.

Beginning in 1982, culture resources surveys have been conducted on the refuge in order to fulfill the requirements of the National Historic Preservation Act (NHPA). Approximately 5,000 acres of the entire 40,198 acres on the refuge have been surveyed. The surveys have been conducted for timber sales, a land exchange, Potter's Pond, and a stratified sample to gather information for the Comprehensive Conservation Plan. Several special studies have also been conducted including a historic bridge survey and a mine contamination study.

Additional surveys are required when new projects are sponsored by the refuge such as road construction, prescribed fire, timber harvest or thinning, facilities remodeling, new construction, and any other activity that has the potential to affect historic properties.

WILDERNESS AND SPECIAL MANAGEMENT AREAS

Refuge records indicate that as early as March of 1948, expanses of the LPO were being examined for inclusion into a national inventory of protected lands, termed "Natural Areas", representing typical climax forests of the major types as defined by the Society of American Foresters and proposed in February of 1947. Today, these are known as Research Natural Areas or RNA's.

The original RNA for the LPO was a tract now called Baird Basin, 160 acres in the North Fork of the Bear Creek watershed. This parcel typifies SAF Forest Type 212, larch-Douglas-fir. In 1959, this was refined to indicate that two additional SAF Forest Cover Types were also present. They are;

- SAF Type 214, ponderosa pine-larch-Douglas-fir
- SAF Type 218, lodgepole pine

During this period, two other RNA's were proposed: Varline Grove-Flodelle Creek area and the Edmonson Grove. The Edmonson Grove was rejected as being too small (8 acres), but remains a very impressive Type 214 dominated by old growth ponderosa pine in a largely pure stand.

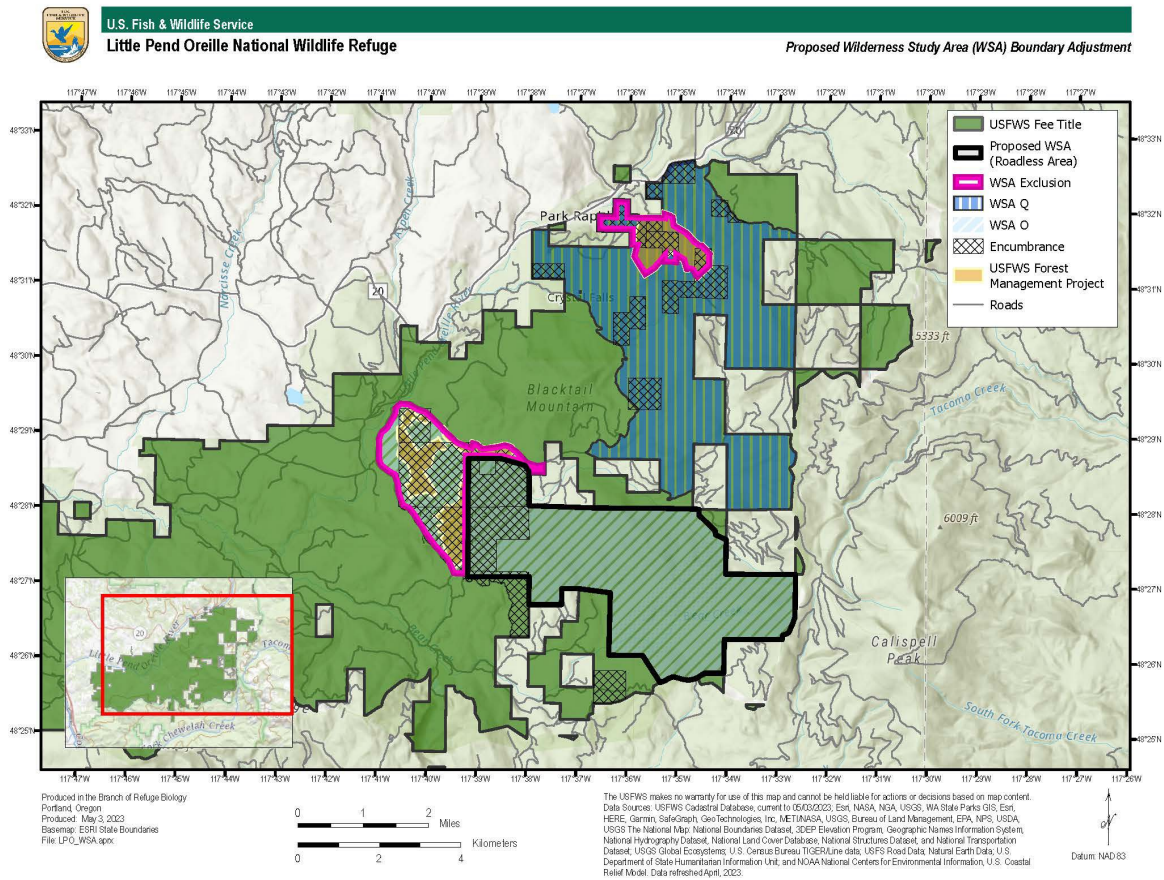
Varline Grove-Flodelle Creek is also 160 acres, was accepted, and represents:

- SAF Type 206, Englemann spruce-subalpine fir
- SAF Type 212, larch-Douglas-fir
- SAF Type 218, lodgepole pine

Wilderness Study Areas.

A 2017 wilderness review of Little Pend Oreille NWR identified 2 wilderness study areas (WSA’s) O and Q.

We will chose the suppression management response that preserves wilderness character and values as well as accomplishes suppression objectives. Helicopter, unmanned aircraft UAS chainsaw and portable pumps may be allowed with approval from the Refuge Manager or Project leader. Heavy equipment use will be allowed on a case-by-case basis with final approval from the Regional Refuge Supervisor per FWS policy.



STRUCTURES AND FACILITIES

Structures on the refuge that need to be considered in a fire situation include: Refuge Headquarters Buildings, Bunkhouse, Maintenance Shop, HazMat Building, Log Barn, Interpretive sites along the auto tour, Visitor Kiosk at Kaniksu unit and Winslow Cabin. None of these are considered historically significant.

1.3 Significant Values to Protect

The Little Pend Oreille National Wildlife Refuge (LPO) was established through Executive Order 8104 "... as a refuge and breeding ground for migratory birds and other wildlife..." and "...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." (Migratory Bird Conservation Act). Rehabilitation of degraded natural resources and protection of white-tailed deer winter range were two primary underlying goals leading to the establishment and management of the refuge.

Significant values to protect include:

1. Habitat-
 - Remnant stands of old growth ponderosa pine and other mature and old forest types
 - Two 160 acre Research Natural Areas, the Baird Basin and Varline Grove
 - Whitetail deer winter range habitat
 - Canada lynx habitat connectivity (predominantly stands above 3500' elevation)
 - Yellow-Billed Cuckoo dense Deciduous Riparian Vegetation
2. Structures-
 - Refuge HQ (office, Q40, garage, outbuildings)
 - Fire Management Building
 - Maintenance Shop and Hazmat Building
 - Bunkhouse
 - Winslow Cabin
 - Log Barn
 - Kaniksu Visitor Kiosk
 - Auto Tour Visitor interpretive signs
 - Wildlife Viewing Blind at McDowell Marsh
 - McDowell Marsh Environmental Education Trail Boardwalk
 - McDowell Lake Overlook
 - Wildlife Viewing Deck Auto Tour at Beaver Pond
 - Beaver Pond Overlook, Off Big Pine Trail
3. Threatened, Endangered, Proposed and Candidate Species (see section above)-
 - Adder's Tongue in Lower Manz Meadow
 - Gray wolf
 - Grizzly bear
 - Ute ladies' tresses
 - Yellow-Billed Cuckoo
 - Canada lynx
 - Bull Trout
 - Water Howellia
 - North American Wolverine (critical habitat)
 - Whitebark Pine (candidate species)
 - Northern spotted owl (*Strix occidentalis caurina*)
 - Marbled murrelet (*Brachyramphus marmoratus*)

Habitats important to listed and sensitive species will be evaluated when making fire management decisions. The input from the Refuge Manager and his or her resource advisors will be critical in evaluating alternatives because these habitats are not always well defined and mapped.

Adjacent property under other ownership will be protected from fires which occur on the refuge in accordance with Service policy. There is significant Wildland Urban Interface and Intermix along the refuge western and northern boundaries. Additionally, the refuge contains in-holdings of private industrial timber lands.

2.0 Policy

2.1.1. Federal Interagency Wildland Fire Policy

Authorities for implementing this plan are as follows;

1. 42 Stat.857; 16 USC 594, Protection Act of September 20, 1922.
2. 47 Stat. 417; 31 USC 315, Economy Act of June 30, 1932.
3. 69 Stat. 66, 67; 42 USC 1856, 1856a and b, Reciprocal Fire Protection Act of May 27, 1955.
4. 80 Stat. 927; 16 USC 668dd-668ee, National Wildlife Refuge System Act of 1966 as amended.
5. 88 Stat. 688; 43 USC 1601, Alaska Native Claims Settlement Claims Act of December 18,1971.
6. 88 Stat. 143; 42 USC 5121, Disaster Relief Act of May 22, 1974.
7. 88 Stat. 1535; 15 USC 2201, Federal Fire Prevention and Control Act of October 29, 1974.
8. Pub. L. 95-244, as amended by Pub. L. 97-258, September 13, 1982. 96 Stat. 1003; 31 USC 6301-6308, Federal Grants and Cooperative Act of 1977.
9. 94 Stat. 2371, Alaska National Interest Lands Conservation Act of December 2, 1980.
10. 96 Stat. 837, Supplemental Appropriation Act of September 10, 1982
11. Pub. L. 100-428, as amended by Pub. L. 101-11, April 7, 1989, Wildfire Suppression Assistance Act of 1989.
12. Departmental Manual, 910 DM 1-3, Wildland Fire Suppression and Management, FireProtection and Assistance, and Wildfire Control and Management-Alaska.
13. Departmental Manual, Series: Public Lands; Part 620: Wildland Fire Management.

14. National Wildlife Refuge Improvement Act of 1997, (PL 105-57)

This FMP implements these guiding principles of federal wildland fire policy:

- Firefighter and public safety is the first priority in every fire management activity.
- The role of wildland fire as an essential ecological process and natural change agent has been incorporated into the planning process. Federal agency land and resource management plans set the objectives for the use and desired future condition of the various public lands.
- Fire management plans, programs, and activities support land and resource management plans and their implementation.
- Sound risk management is a foundation for all fire management activities. Risks and uncertainties relating to fire management activities must be understood, analyzed, communicated, and managed as they relate to the cost of either doing or not doing an activity.
- Fire management programs and activities are economically viable, based upon values to be protected, costs, and land and resource management objectives,
- Fire management plans and activities are based upon the best available science.

- Fire management plans and activities incorporate public health and environmental quality considerations.
- Federal, State, tribal, local, interagency, and international coordination and cooperation are essential.
- Standardization of policies and procedures among federal agencies is an ongoing objective.

2.1.2. National Fire Plan

This FMP emphasizes the following primary goals of the 10 Year Comprehensive Strategy and Cohesive Strategy for Protecting People and Sustaining Natural Resources: Improving fire prevention and suppression, reducing hazardous fuels, restoring fire-adapted ecosystems, and promoting community assistance.

2.1.3. Department of Interior (DOI) Fire Policy

This FMP meets DOI policy in 620 DM 1 by making full use of wildland fire as a natural process and as a tool in the planning process.

2.1.4. U.S. Fish and Wildlife Service Fire Policy

This FMP addresses a full range of potential wildland fires and considers a full spectrum of tactical options (from monitoring to intensive management actions) in order to meet Fire Management Unit (FMU) objectives. It fully applies procedures and guidelines in the Service Fire Management Handbook and the Interagency Standards for Fire and Fire Aviation Operations and affirms these key elements of FWS fire policy:

- Firefighter and public safety is the first priority of the wildland fire management program and all associated activities.

- Only trained and qualified leaders and agency administrators will be responsible for, and conduct, wildland fire management duties and operations.
- Trained and certified employees will participate in the wildland fire management program as the situation requires, and non-certified employees will provide needed support as necessary.
- Fire management planning, preparedness, wildfire and prescribed fire operations, other hazardous fuel operations, monitoring, and research will be conducted on an interagency basis with involvement by all partners to the extent practicable.
- The responsible agency administrator has coordinated, reviewed, and approved this FMP to ensure consistency with approved land management plans, values to be protected, and natural and cultural resource management plans, and that it addresses public health issues related to smoke and air quality.
- Fire, as an ecological process, has been integrated into resource management plans and activities on a landscape scale, across agency boundaries, based upon the best available science.
- Wildland fire is used to meet identified resource management objectives when appropriate.
- Prescribed fire and other treatment types will be employed whenever they are the appropriate tool to reduce hazardous fuels and the associated risk of wildfire to human life, property, and cultural and natural resources and to manage our lands for habitats as mandated by statute, treaty, and other authorities.
- Management's response will consider firefighter and public safety, cost effectiveness, values to protect, and natural and cultural resource objectives.
- Staff members will work with local cooperators and the public to prevent unauthorized ignition of wildfires on our lands.

2.2 Land/Resource Management Planning

This FMP is an operational plan that implements the direction found in the Little Pend Oreille NWR Final Comprehensive Conservation Plan (FWS, 2000). Overarching resource management strategies and objectives are delineated in the CCP. This Fire Management Plan complies with the NEPA because an Environmental Impact statement for the CCP was completed in 2000 and a Record of Decision was signed by the Regional Director on May 31, 2000. The ROD also states that, based on an intra-service Section 7 evaluation, the CCP complies with the Endangered Species Act.

The CCP specifies that fire management activities, including prescribed fire, will be used to achieve habitat objectives.

The Habitat Management Plan (FWS, 2005) is a step-down plan to the CCP, contains specific objectives, prescriptive elements, and desired future conditions for the specific habitats contained within the Refuge.

The Fire Management Plan will help meet the objectives detailed in the Comprehensive Conservation and Habitat Management plans. Fire use objectives and other prescriptive elements may be found in Chapter 4 of the Habitat Management Plan for Dry Forest, Moist Forest, Aspen and Old Field habitats and are reflected within this Fire Management Plan.

2.3. Fire Management Partnerships

The Little Pend Oreille NWR is an active participant in the FPA process as a member of the Northeast Washington Fire Planning Unit. Other FPU members are listed below:

- USDA Forest Service, Colville National Forest
- USDI-Bureau of Land Management, Spokane District
- USDI-NPS, Lake Roosevelt National Recreation Area
- USDI-BIA, Colville Indian Agency
- USDI-BIA, Spokane Indian Agency
- Colville Confederated Tribes
- Spokane Tribe

The Refuge is also a signatory to the Stevens County Community Wildfire Protection Plan, working in cooperation with the Washington DNR and local fire districts as well as the Federal agencies listed above.

The Refuge maintains a Cooperative Agreement with the Washington State Department of Natural Resources for dispatch support, the sharing of radio frequencies and reciprocal fire assistance. Through this agreement, the FWS provides financial support to the Northeast Washington Interagency Communications Center. NEWICC provides dispatch services for the USFS, WA-DNR, BLM, NPS, BIA and USFWS, with all participating agencies providing reciprocal fire assistance.

The Refuge has a Memorandum of Understanding with the Spokane Indian Agency which provides for reciprocal assistance in training and prescribed fire management.

3.0 Fire Management Unit Characteristics

3.1. Area Wide Management Considerations

Vehicle access to normally closed areas of the refuge will be made using existing fire roads when possible. When off-road travel is determined to be necessary, vehicle access will be allowed with approval of the Project Leader, Refuge Manager, FMO, or delegate.

Heavy equipment such as crawlers, tractors, dozers, or graders will not be used within the refuge boundaries unless their use is necessary to prevent a fire from destroying privately-owned and/or government buildings and historic resources. The use of any heavy equipment requires approval from the Project Leader or delegate in any riparian area. Critical protection areas, such as Refuge Headquarters, support and maintenance facilities and Winslow cabin, will receive priority consideration in fire control planning efforts. In all cases, the primary concerns of fire suppression personnel shall be the safety of firefighters and the public, and if needed, all individuals not involved in the suppression effort may be evacuated.

3.1.1 Management Goals, Objectives and Constraints in the CCP

The overall objectives for fire management are to promote a program to ensure firefighter and public safety, reduce human-caused fires, ensure appropriate suppression response capability to

meet expected wildland fire complexity, and increase the use of prescribed fire to insure that land management goals are met. Specific fire management objectives are:

- Restore natural forest structure and composition with a mosaic of stands that approaches the Historic Range of Variability. Promote large tree size and stand development into mature and old stages over 50% of the refuge.
- Maintain old fields in an open condition for habitat diversity, photography and viewing opportunities.
- Restore mature stand structures and fire's role in dry forest stands on up to 1,000 acres per year. Strive to create open stands dominated by scattered mature pine and larch trees to provide diverse natural habitat and to reduce the risk of catastrophic wildfire and disease resulting from unnatural conditions such as over-crowding and conversion.
- Minimize conditions that favor weed establishment and spread.

3.1.2 Management Goals, Objectives and Constraints from Other Sources

- Management response to wildfire will protect life, property and resources at costs commensurate with resource values at risk.
- Use suppression tactics and strategies that minimize long-term impacts.
- Use of fire will be constrained by impacts to endangered species and their habitats, notably Canada lynx, and by hydrology, weather, fuel types, soil moisture, soil type, smoke dispersion patterns, available suppression resources both locally and nationally, and federal, state and local laws pertaining to wetlands protection and smoke management. Constraints will be specifically addressed in individual unit prescriptions.

Costs

Maximizing the cost effectiveness of any fire operation is the responsibility of all involved, including those that authorize, direct, or implement those operations. Cost effectiveness is defined as the most economical use of the suppression resources necessary to accomplish mission objectives. Accomplishing fire operations objectives safely and efficiently will not be sacrificed for the sole purpose of "cost saving." Care will be taken to ensure that suppression expenditures are commensurate with values to be protected, while understanding that other factors may influence spending decisions, including the social, political, economic and biophysical environments.

The Wildland Fire Decision Support System (WFDSS) is the decision support and documentation tool utilized for the analysis of integrated risk and cost management.

3.1.3 Common Characteristics across all FMUs

The ecological role of fire is as complex as the local habitat is diverse. Throughout their ranges, ponderosa pine (*Pinus ponderosa*), Western larch (*Larix occidentalis*) and, to a somewhat lesser degree, Douglas-fir (*Pseudotsuga menziesii*) are well adapted to wildland fire. These three species dominate our forest habitat and exhibit evidence of regular disturbance by wildland fire.

Prior to pioneer settlement the low elevation ponderosa pine habitat was burned by wildland fire every 5 to 25 years. This relatively high frequency, low intensity fire is essential to maintaining healthy stands of interior ponderosa pine. For this reason, most of the initial prescribed fire management activity referred to in the CCP and this plan will be carried out in the ponderosa pine forests.

Ponderosa pine produces an abundance of highly resinous needles which provide excellent fuel for carrying fires that the species depends upon to help sanitize the stand, prepare sites for seed germination and reduce competition. Other adaptations include self pruning of lower branches, long needles in an open type crown, high foliar moisture content, large buds with insulating scales, thick, exfoliating bark and deep taproots. All of which help individual trees survive fire and make the ponderosa pine forest dependant upon fire for overall stand health and vitality.

In addition, the refuge's dry forest community has a large area of dry site Douglas-fir/grand fir. This forest type has many of the same characteristics as the ponderosa pine community albeit to a lesser degree. These forests also require periodic fire to maintain vigor.

Use of fire, and other management strategies, will result in reduced stocking, increases in average stand diameters and greater overall vigor in the tree, shrub, grass and forb components all of which are important to wildlife. Restoring the periodic occurrence of fire will also promote deciduous tree species such as aspen (*Populus tremuloides*), black cottonwood (*Populus trichocarpa*), Western white birch (*Betula papyrifera*) and water birch (*Betula occidentalis*). These species occurred in far greater abundance under a natural fire regime where fires burned at regular intervals.

Of particular note is the gradual loss of aspen clones throughout the dry forest. Aspen is an important species for a wide variety of migratory and resident birds and also for big game such as deer. This species occurred on wetter microsites within the larger forest and greatly added to native habitat diversity. Fire suppression and grazing have led to the demise of these desirable stands. Under a normal fire regime, fire would curtail encroachment by ponderosa pine and other species because during most instances when the surrounding forest would burn, aspen groves would be too wet to carry a fire. In those seasons when aspen stands would burn, the fire tended to be light and aided in aspen regeneration by exposing more soil to sunlight and warmth. With the exclusion of fire, invasion of other tree species occurred into, and around, the aspen groves resulting in excess competition for resources, in particular, water and light. Aspen is relatively short lived compared to ponderosa pine, Western larch and Douglas-fir and propagates best through cloning by means of root suckers produced on lateral root buds. This suckering is viable, and sustainable, when an abundance of light, and heat, reach the forest floor. As the larger aspen trees in a grove die out, they would be replaced by developing clones from below. Excessive competition from invaders slowly negated this process. As a result, aspen stands lost vitality and began to fade. Many remnants of these groves can still be detected, but they are very much in decline and require attention if they are to be revived and allowed to flourish.

Although detailed, chronologically specific site data is lacking, some generalizations regarding fire in other forest communities of the refuge, and similar habitats of the surrounding landscape, can be made. As mentioned above, prior to pioneer settlement the low elevation ponderosa pine habitat was burned by wildland fire about every 5 to 25 years. Mixed stands of Douglas-fir and other species burned at somewhat greater intervals depending upon topography, aspect, elevation and fuel type. Most of the refuge forest is dominated by Douglas-fir/mixed forest in both dry and moist settings. The natural periodicity of fire in the dry Douglas-fir is between 10 and 24 years (Agee 1993); while the moist forest is somewhat longer at 13 to 26 years

High elevation sub-alpine fir forests have the longest fire intervals of the forest types on the refuge at 109-275 years (Agee 1993), depending upon the actual location. Due to the low resistance to fire of the tree species associated with the “cold forest” zone and the marginal environment in which these trees exist, regeneration and growth after disturbance can be a long and difficult process which may last for decades or centuries. The relative permanence of sub-alpine meadows is largely due to this phenomenon (Agee 1993). On the LPO, western hemlock and western red-cedar trees are more often associated than not. For this reason, and the intent of this FMP, these species will be considered in unison.

Western hemlock/western red-cedar stands are common on the refuge and exact fire interval data is not available, however, despite the fact that these species are rated as low to moderate in their resistance to fire, these stands typically persist for long periods of time, on the order of several centuries. Data from North Idaho indicates that fire return intervals of 50-100 years for low to moderate intensity fires and 150 -500 years for stand replacement fires (Forested Plant Associations of the Colville National Forest 1995). This is likely due to their propensity to grow on cooler, wetter sites than their competitors and the fact that they so dominate a site that very little can exist beneath their closed canopy except for their own offspring and ground covering plants such as queencup beadlily (*Clintonia uniflora*) and twinflower (*Linnaea borealis*). This combination of wet, cool site and paucity of understory fuel does not lend itself to frequent or intense fires. The fact that Western hemlock/Western redcedar stands tend to achieve their full climax potential in stream bottoms often allows them to serve as effective natural fire breaks during normal fire seasons when the surrounding uplands have favorable conditions for supporting fire. Furthermore, large, old cedar trees with thick insulating bark are more resistant to damage from fire than younger, thin barked trees. Old cedar stands with clear understories tend to have very light, low intensity fires which helps contribute to stand longevity.

The moist and cold forest zones will also benefit from occasional prescribed fire. Because the natural fire regime indicates that the fire return interval was greater in these types, the effects of fire exclusion have been far less dramatic. Fire will not be used to the same extent as in the dry forest zone. Its application will be guided by the concept of restoring overall forest health and vigor in those areas where its use is determined to be beneficial and necessary.

Because of the overriding importance of watersheds to natural resource management, the refuge has been divided into five primary management units to serve both habitat and fire management needs. Each primary unit is further sub-divided by secondary management units (watersheds). Detailed descriptions of these secondary units may be found in the Refuge Habitat Management Plan (2005). To be consistent with our overall habitat management goals (see CCP for more details), the concept of the dry, moist and cold forest fire regimes found in each of these FMU's will be considered when detailed prescriptions are written to further compartmentalize the units and ensure continuity with refuge resource management goals.

Fuels

For the purpose of estimating fire behavior, natural wildland fuels are described as “Fuel Models” (FM). Fuel Models are further broken down into four broad categories progressing from lightest to heaviest as follows; Grass, Brush, Timber and Slash. Each FM is characterized by fuel size classes expressed in inches in diameter, tons per acre, live versus dead and fuel bed

depth. These are all measurable descriptors which enter into the fire behavior prediction equations.

There are 40 major fire behavior fuel models (FBFM) which are found within the refuge. A detailed description of each may be found at <https://www.landfire.gov/DataDictionary/f40.pdf> FBFM40. They are listed in order of their relative abundance.

FBFM40	Sum acres	% of FBFM 40
TU5	17,729.3	36%
GS2	14,488.1	29%
TL8	9,498.7	19%
TU1	2,712.8	5%
GR2	2,423.7	5%
GS1	867.1	2%
TL6	613.8	1%
TL3	371.0	1%
SH2	199.5	0%
SH7	195.7	0%
NB8	144.8	0%
GR4	101.6	0%
TU2	90.1	0%
NB1	62.0	0%
GR1	54.7	0%
NB9	49.1	0%
TL1	47.4	0%
SH3	46.5	0%
GR3	9.6	0%
NB3	6.2	0%
SH5	3.3	0%
TL5	2.2	0%
TL2	1.1	0%
	49,718.3	100%

Each FBFM has some of the fuel models in it. At this time we don't have the amount broken out as far as number of acres in each. This will be added as we develop our GIS data.

FBFM TU5; Very high load, dry climate shrub, heavy forest litter with shrub or small tree understory, spread rate and flame moderate.

FBFM GS2; Moderate load, dry climate grass-shrub, shrubs are 1-3 feet high, grass load moderate, spread rate high, and flame length is moderate.

FBFM TL8; Long needle litter, moderate load long needle pine litter, may have small amounts of herbaceous fuel, spread rate moderate and flame low.

FBFM TU1; Low load dry climate timber grass shrub, low load of grass and/or shrub with litter, spread rate and flame low.

FBFM GR2; Low load, dry climate grass primarily grass with some small amounts of fine, dead fuel, any shrubs do not affect fire behavior.

FBFM GS1; Low load, dry climate grass-shrub shrub about 1 foot high, grass load low, spread rate moderate and flame length low.

FBFM TL6; Moderate load broadleaf litter, spread rate and flame moderate.

FBFM TL3; Moderate load conifer litter, moderate load conifer litter, light load of coarse fuels, spread rate and flame low.

Under extreme conditions (97th percentile) FBFM TU5, and GS2, provide a great deal of risk of extreme fire behavior and high resistance to control.

Fire Behavior

In discussing fire behavior a high degree of variability exists for any given set of weather conditions because of the wide deviation in fuel types and elevations. The Little Pend Oreille NWR has been identified by the Washington GAP Analysis (Cassidy et al, 1997) as having one of the most diverse mixes of forest habitat types in the State and one of the most important reserves in the region for extensive ponderosa pine forests. This dry forest type epitomizes fire tempered forest habitat in the Western United States with its variety of vegetative adaptations and high fire frequency.

In any forest community where heavy surface fuels, ladder fuels and overstocked stands (exceeding 18,000 stems per acre in some areas) are encountered one can expect to have catastrophic fires with extreme fire behavior at some point in time. This is the case at LPO. Because of this, a large part of our preparedness efforts will be directed toward “pre-conditioning” forest stands by mechanical means such as pre-commercial and commercial thinning prior to the re-introduction of fire. The mechanical manipulations will reduce the risk of stand-replacing fire events.

For the purpose of managing a response to wildfire, we may consider various fire intensity levels with regard to fires’ resistance to control and potential resultant damage. The following analysis considers two prominent fuel types on the refuge, Fuel Model 9 (closed canopy ponderosa pine stands), and Fuel Model 10 (mixed coniferous species with heavy dead and down fuel loading). The table below illustrates three possible fire intensity levels, based on the Burning Index and an analysis of weather observations at the LPO RAWS station from 1996-2007.

Table 2 – Fire Intensity Levels

Fire Behavior Inputs	FIL1: BI_≤27	FIL 2: BI 28-53	FIL 3: BI >53 (97th Percentile)
1 hr fuel moisture	10%	7%	4%
10 hr fm	14%	10%	6%
100 hr fm	15%	11%	7%
Live Fuel Moist.	300%	150%	100%

20-ft wind speed	7	7	7
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At a Fire Intensity Level 3, the following fire behavior outputs might be expected.

ROS (maximum) (ch/h) FIL 3			
Fuel Model	Wind Adjustment Factor		
	0.1	0.2	0.3
tu5	6.3	7.9	9.6
gs2	8.4	10.7	13.7
tl8	3.3	3.9	4.7
Flame Length (ft) FIL 3			
Fuel Model	Wind Adjustment Factor		
	0.1	0.2	0.3
tu5	6.6	7.2	7.9
gs2	3.2	3.6	4
tl8	2.6	2.9	3.1
Contained Area (ac) FIL 3			
Fuel Model	Wind Adjustment Factor		
	0.1	0.2	0.3
tu5	*-1	*-1	*-1
gs2	*-1	*-1	*-1
tl8	3.8	6.5	16
*fire not contain in 12 hr. shift			
Fireline Constructed (ch) FIL 3			
Fuel Model	Wind Adjustment Factor		
	0.1	0.2	0.3
tu5	144.9	144.8	144.7
gs2	144.7	144.6	144.6
tl8	25	35	62.5

In either of these fuel types, direct attack by hand crews would not be feasible, and in the mixed conifer forest, even dozer line construction is questionable. (assumes 3 person engine crew initial attack capabilities)

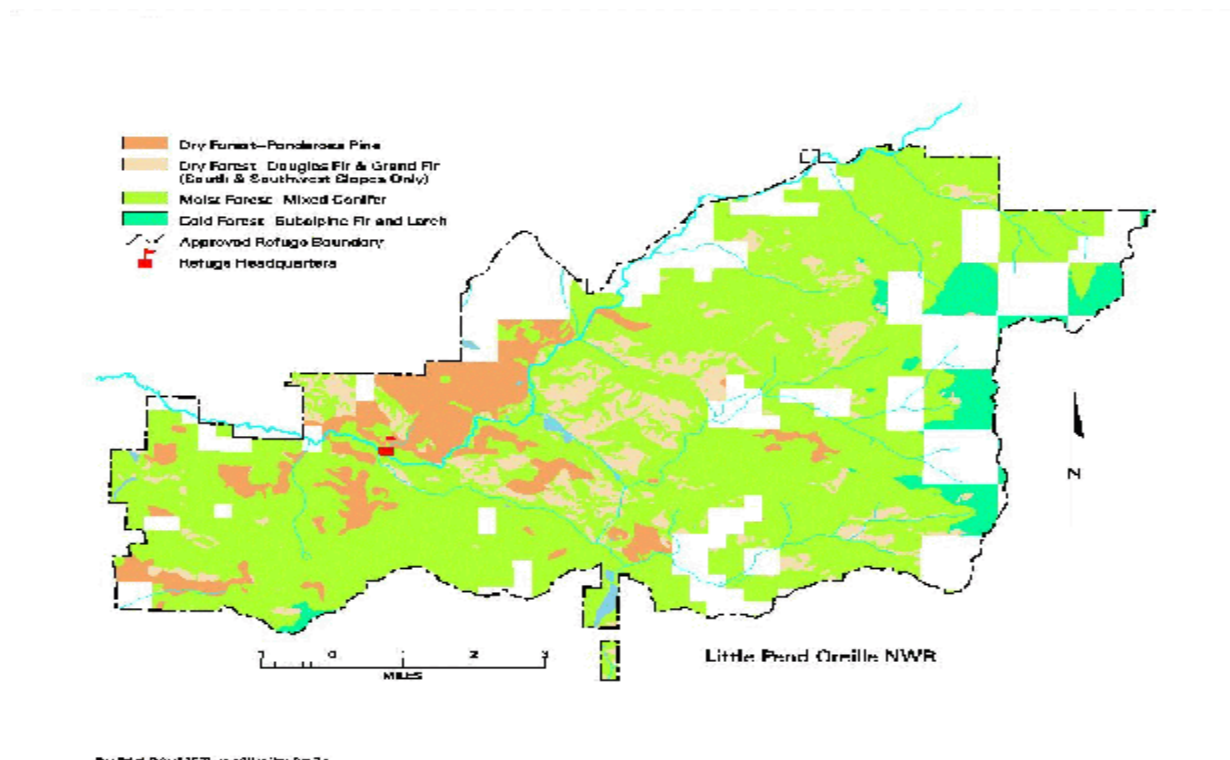


Figure 2 – Habitat Types

Table 1- Fire Management Units

<i>FMU Name</i>	<i>Strategy</i>	<i>Acres</i>	<i>Fuel Models</i>	<i>HMP Management Units</i>
<i>A – Upper LPO River</i>	<i>Minimize Fire Size</i>	<i>8893</i>	<i>TU5, TL8, TU1</i>	<i>Cedar Creek, Olsen Creek</i>
<i>B – Lower LPO River</i>	<i>Minimize Fire Size</i>	<i>11652</i>	<i>GR2, TL8, TL6, TU1</i>	<i>McDowell Lake, Starvation Lake, Durlan Springs, Noman Creek</i>
<i>C- Bear Creek</i>	<i>Minimize Fire Size, Confine and Contain</i>	<i>16792</i>	<i>TU5, TL8, TL6, TU1</i>	<i>Lower Bear Creek, Upper Bear Creek, North Fork Bear Creek</i>
<i>D – Bayley Lake</i>	<i>Confine and Contain</i>	<i>427</i>	<i>GR2, TL8, TU1</i>	<i>Bayley Lake</i>
<i>E – Moran Creek</i>	<i>Minimize Fire Size</i>	<i>2467</i>	<i>GR2, TL6, TU1</i>	<i>Moran Creek</i>

3.2 Upper Little Pend Oreille River FMU

3.2.1 Upper Little Pend Oreille River FMU Description

This FMU contains the Cedar Creek and Olsen Creek Habitat Management Units (see Habitat Management Plan (HMP), 2005). This FMU has some Wildland Urban Intermix along State Route 20 as well as private industrial timberland inholdings (approx 1600 ac). The adjacent

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jurisdiction is primarily WA Department of Natural Resources (DNR) and Colville NF. The inholdings and adjacent jurisdictions fall under the Refuge's reciprocal fire protection agreement with those agencies. This FMU contains one of the Research Natural Areas (Varline Grove).

3.2.2 Upper Little Pend Oreille River FMU Objectives

Specific objectives are to protect private lands from fire spread. Any fire deemed a threat to spread onto private lands will be kept as small as possible.

Fuels treatment objectives will include using WUI funding to conduct mechanical fuels reduction projects, primarily along the Refuge Boundary with the Intermix and Interface in the Hwy 20 corridor. In addition, hazardous fuels funding may be used in stands classified as dry forest habitat for restoration treatments that will convert them to a Condition Class 1.¹

3.2.3 Upper Little Pend Oreille River FMU Values to Protect

Wildland Urban Intermix, with some Interface at the Park Rapids Community along US Route 20. Private industrial timberlands which are checker-boarded in the extreme eastern portion of the FMU. Habitat for the Canada Lynx, which exists primarily above 3500 feet MSL

3.3 Lower Little Pend Oreille River FMU

3.3.1 Lower Little Pend Oreille River FMU Description

This FMU includes the Noman Creek, Durlan Springs, Starvation Lake and McDowell Habitat Units (HMP, 2005). It abuts a significant amount of Wildland Urban Intermix along the Refuge's north and west boundaries. Adjacent jurisdiction is WA-DNR. This FMU contains all the refuge structures.

3.3.2 Lower Little Pend Oreille River FMU Objectives

Wildfire objectives of this FMU are to protect Refuge structures and prevent fires from spreading onto private lands. Minimizing fire size will be the initial attack response. Point protection of key sites may be appropriate under the highest fire intensity levels (see Fire Behavior Analysis, above).

Fuels treatment objectives will include mechanical fuels reduction along the Refuge boundary to protect WUI. In addition, mechanical treatments and prescribed fire will be used to a great extent as a means of habitat restoration and maintenance and hazardous fuels reduction. These restoration efforts will occur primarily in the dry forest habitat type (CCP and HMP).

Constraints in this FMU include no use of retardant within 300 feet of streams and ponds as well as the requirement to clean aerial buckets prior and after using McDowell Lake as a dip site for water (Eurasian Water Milfoil).

3.3.3 Lower Little Pend Oreille River FMU Values to Protect

¹ Condition Class is defined as the degree of departure from historic fire regimes. The classes categorize and describe vegetation composition and structure and serve as generalized wildfire risk rankings. The risk of loss of key ecosystem components from wildfires increases from Condition Class 1 (lowest risk) to Condition Class 3 (highest risk).

Refuge Headquarters, Bunkhouse, Maintenance Shop and Hazmat Building
Winslow Cabin, Log Barn, Auto Tour Interpretive Signs .
WUI along northern and western boundaries -this is predominantly intermix, with a more concentrated cluster of housing at Starvation Lake.
Campgrounds: Cottonwood, Horse Camp and River Camp
McDowell Marsh Environmental Education Trail (Boardwalk at McDowell Lake)
Wildlife viewing blind at McDowell Lake

3.4 Bear Creek FMU

3.4.1 Bear Creek FMU Description

This FMU includes North Fork of Bear Creek, Upper Bear Creek and Lower Bear Creek Management Units (HMP, 2005). A significant portion of this FMU is without roads, (3000+ acres in the eastern portion). The FMU contains in-holdings of private industrial timberland (approx 3340 acres). Also contained within this FMU is the Baird Basin Research Natural Area (160 ac). The guiding principle of RNA management is the prevention of un-natural encroachments. This would include a wildfire that is burning outside the normal regime and threatening ecological processes.² Additionally, RNA management would not preclude the use of prescribed fire to restore natural ecological processes. Adjacent jurisdictions are primarily the USFS- Colville National Forest and the WA DNR.

3.4.2 Bear Creek FMU Objectives and Constraints

Specific objectives will be to prevent fire spread on to private timber lands. At FIL 1, strategies may include monitoring on some fire sectors with perimeter control on others. At FIL's 2 and 3, strategies may include direct or indirect attack dependant upon access, fire behavior and risk to firefighters.

Fuels management objectives for this FMU are primarily the re-establishment of fire's role in the dry forest stands and the associated mechanical fuels reduction needed prior to using prescribed fire. This mechanical work may include pre-commercial thinning, hand piling, commercial thinning or machine piling.

3.4.3 Bear Creek FMU Values to Protect

Private timber lands
Canada Lynx habitat above 3500 ft elevation
Bear Creek Campground

3.5 Bayley Lake FMU

3.5.1 Bayley Lake FMU Description

Bayley Lake Watershed begins in the Bayley Lake gorge and extends south via an underground outlet and a series of beaver ponds. Of the 427 acres, approximately 300 are burnable acres.

² Franklin, Hall, Dyrness and Maser, Federal Research Natural Areas in Oregon and Washington: A Guidebook for Scientists and Educators, 1972, PNW Forest and Range Experiment Station, Portland Oregon.

Adjacent jurisdiction is USFS - Colville National Forest. This FMU offers habitat value for American Bald Eagle and is a common nesting area.

3.5.2 Bayley Lake FMU Objectives and Constraints

Specific objectives will be to contain fire using natural barriers such as rock scree and water features common in this FMU. In cases where a fire start would threaten USFS land, the strategy would be to minimize fire size to alleviate potential fire spread.

Fuels management objectives for this FMU are primarily the re-establishment of fire's role in the dry forest stands and the associated mechanical preparation work needed prior to using prescribed fire.

Constraints in this FMU include very limited use of retardant due to the proximity to water ways as well as the requirement to clean aerial buckets prior to using the ponds as a dip site for water.

3.5.3 Bayley Lake FMU Values to Protect

Potters Pond Campground and Boardwalk.

Any known Bald Eagle nesting trees

3.6 Moran Creek FMU

3.6.1 Moran Creek FMU Description

Moran Creek FMU begins at the hydrographic divide which separates the Lower Little Pend Oreille River Watershed from the extreme western portion of the refuge which drains into the Colville River. Sub-watersheds include Long Lake, Moran Creek, and Slide Creek. Adjacent jurisdictions include the USFS- Colville NF, the WA-DNR and Stevens County Fire District 7. The Moran Creek Unit is described in detail in the HMP, 2005.

3.6.2 Moran Creek FMU Objectives and Constraints

Specific objectives for the Moran Creek FMU are to minimize fire size and prevent fire spread on to private lands. Tactical decisions with regard to direct or indirect attack may be made in line with consideration of values to be protected and the fire intensity level at the time.

3.6.3 Moran Creek FMU Values to Protect

Wildland Urban Intermix is present in both Slide Creek and Moran Creek roads.

3.7 Other Lands Administered by Little Pend Oreille: Kaniksu, Springdale, Okanagan and Cusick Units

3.7.1 Description

The Kaniksu Unit (716 acres) lies near Deer Lake in Stevens County and consists of a large wetland of 550 acres with the remainder being upland forest. Deer Lake is heavily developed with lakefront homes, therefore the unit lies within the wildland urban interface.

The Cusick Unit (254 acres) is situated on a broad valley floor near the Pend Oreille River. It consists primarily of grasses and wetlands with approximately 50 acres of mixed forest on the northern side of the unit.

The Springdale Unit (55 acres) is located within the Wildland Urban Interface near Springdale in southern Stevens County and is primarily a wetland marsh with some upland forest.

Okanagan Unit (35 acres) located in Okanagan County.

These units all have fuels similar to those found on the refuge itself. The Cusick Unit has had recent habitat treatment designed to reduce conifer encroachment (2008), and does have piled logging slash present on roughly 43 acres.

3.7.2 Objectives and Constraints

Specific objectives for these units are to minimize fire size because of their limited area and proximity to structures or other private assets. Initial attack for fire starts on these properties is covered under the reciprocal agreement with cooperators dispatched out of the Northeast Washington Interagency Communication Center.

In addition to suppression, fire management activities may include mechanical fuel reduction and prescribed fire where appropriate to mitigate hazardous fuel accumulation and restore habitat or ecological process. These activities will be carried out under unit specific plans when needed.

3.7.3 Values to Protect

In all these units, a primary value to protect is surrounding private property, and in the case of a fire start in fuels where fire spread is possible, the most appropriate strategy will be minimizing fire size. There is a Visitor Kiosk at the Kaniksu property.

Of special value on these units are the wetlands contained within their boundaries so in the case of a fire burning onto Service lands, the primary consideration should be to avoid damage from suppression efforts (i.e. do not make the suppression effort more damaging than the fire effect itself).

4.0 Wildland Fire Operational Guidance

Fire Program management includes: fire prevention, preparedness, fire behavior predictions, step-up staffing plan, fire detection, fire suppression, rehabilitation and stabilization and documentation.

4.1 Management Response to Wildfire

Since the objectives of fire management at LPO include the restoration of natural forest structure as well as the protection of life, property and resources, response to wildfire will utilize strategies and tactics designed to achieve those objectives for each incident.

All wildfires will be managed in a prompt, safe, and cost-effective manner to meet overall Refuge or FMU objectives.

Structural fire suppression is the responsibility of local governments. We may assist with exterior structural protection activities under formal Fire Protection Agreements that specify mutual responsibilities, including funding.³

4.1.1 Management Response Direction

General Direction

Evaluation and selection of the initial response to a wildfire will be made by the FMO or Duty Officer in consultation with the Refuge Manager and include consideration of risks to public and firefighter safety, threats to the values to protect, costs of various mitigation strategies and tactics, and potential resource benefits. (Refer to FMU section(s) for specifics.)

Wildfires will be staffed or monitored during active burning periods as needed to ensure that appropriate mitigation actions can be made to protect values threatened.

All wildfires will be supervised by a qualified incident commander (IC) who is responsible to

- Assess the fire situation and make a report to dispatch as soon as possible.
- Use guidance in this FMP or a delegation of Authority to determine and implement strategies and tactics that meet FMU objectives.
- Determine the organization and resources needed.
- Brief incoming and assigned resources on the organization, strategy and tactics, weather and fire behavior, LCES, seasonal and historic ERCs, and radio frequencies.
- Order resources needed through the designated dispatch office.
- Manage the incident until relieved or the incident is under control.

The FMP and a delegation of authority can provide a general strategy to an IC, who has discretion to select and implement appropriate tactics within the limits described for the FMU(s), including when and where to use minimum impact suppression tactics (MIST) unless otherwise specified. All resources, including mutual aid resources, will report to the IC (in person or by radio) and receive an assignment prior to tactical deployment.

Although resource impacts of suppression alternatives must always be considered in selecting a fire management strategy, resource impacts will not be the primary consideration. Appropriate suppression action will be taken to ensure firefighter and public safety as well as protection of the resources.

Suppression tactics

The habitat management objectives for each FMU as related to fire involve the utilization of natural and pre-existing barriers in suppression efforts to manage refuge resources. Wildland fire response would be the same for all five of the FMU's.

Each fire will have only one Incident Commander responsible through the FMO to the Project Leader or Delegate. The Incident Commander will designate all overhead positions on fires requiring extended attack. Reference should be made to a Delegation of Authority (Appendix M).

Suppression actions may take any of the following forms:

³ Interagency Standards for Fire and Aviation Operations, 2008
Inland Northwest National Wildlife Refuge Complex
Little Pend Oreille National Wildlife Refuge - 2009 Fire Management Plan

1. **Direct attack:** Action taken close to the flaming front of a fire either at the rear, flank or head of a fire. Requires separation of fuels or use of agent (water, mineral soil, chemicals) to make the fuels unavailable to the combustion process. Often referred to as “working in the black”.
2. **Indirect Attack:** Action taken away from the flaming front. Used when circumstances such as terrain, available resources or fire intensity prohibit direct attack or fire assessment indicates that the safest and most efficient strategy is to fight the fire from some man-made or natural fuel-break. Fuels between the fire line and the black area are usually burned out either actively or by letting the fire burn to the break.
3. **Point Protection:** Action taken to protect a specific value in the event that containment of a fire or portion of a fire is not practical.
4. **Monitoring:** Action taken to gain intelligence through observation of fuels, topography, weather and fire behavior. Monitoring may continue on a portion or portions of a fire as long as FMU objectives are met.

Primary initial attack resources are engines and hand crews. When available, air resources include helicopter crews, helicopters with buckets, Single Engine Air Tankers (SEAT), Large Air Tanker (LATs) and Very Large Air Tankers (VLATs). These resources will be local, either LPO fire personnel, Washington State Department of Natural Resources (DNR), or United States Forest Service personnel from the Colville National Forest (CNF).

The Northeast Washington Interagency Communications Center serves as both initial attack and extended attack dispatch for fire and other related incidents. We are currently sharing frequencies with CNF, DNR, U.S. Bureau of Indian Affairs, Spokane Agency (BIA) and the National Park Service (NPS).

Suppression strategies should be applied so that the equipment and tools used to meet the desired objectives are those that inflict the least impacts upon the natural and cultural resources. Minimum impact suppression strategies will be employed to protect all resources. Natural and artificial barriers will be used as much as possible for containment. When necessary, fire line construction will be conducted in such a way as to minimize long-term impacts to resources.

4.1.2 Preparedness

The Little Pend Oreille NWR will maintain a satisfactory state of preparedness at all times for wildland fire control and prescribed fire management.

Fire Cache - A fire cache is located near the refuge headquarters and is maintained by the fire crew supervisor (FMO delegate). This cache is supplied to support all red-carded personnel. The cache will be maintained and inventoried annually by the FMO or delegated individual.

Additional equipment and supplies are available through cooperators and the interagency cache system. Requests for additional personnel and equipment are made through the servicing Dispatch for the area.

Table 3: Annual Refuge Fire Readiness Activities

Activities – Complete before end of month	J	F	M	A	M	J	J	A	S	O	N	D
Update Interagency Fire Agreements/AOP's	x											
Winterize Fire Management Equipment										x		
Inventory Fire Engine and Cache		x										
Complete Training Analysis										x		
Annual Refresher Training			x			x						
Annual Fitness Testing			x			x						
Pre-Season Engine Preparation			x									
Weigh Engines to verify GVW Compliance			x									
Prescribed Fire Plan Preparation	x	x	x									x
Review and Update Fire Management Plan				x								
Prepare Pre-season Risk Analysis			x									
Weather Station Maintenance and Calibration										x		
Hire Seasonal Employees		x	x									

When preparations are complete for the fire season, fire personnel will shift their emphasis to prescribed burn activities including burning pre-approved units and new unit preparation in accordance with the annual prescribed burn plan. This will require a variety of activities including thinning, construction of fire lines, mapping, monitoring, and identifying and defining future burn units.

The Refuge wildland fire season typically begins the middle of June and goes through September with a peak period from late July until the second week of September when accumulated fuels and weather conditions combine to create the most volatile fire situations and extremes of fire behavior (See Appendix C –Fire Danger Indices and Preparedness Step-up Plan).

Training

Each year prior to fire season (mid-June) fire personnel will be hired three to four weeks early in order to accomplish training and preparation for the coming season, including RT-130, Fireline Safety Refresher and Work Capacity Testing. The crew will also detail engines and equipment, inventory the fire cache, and do joint exercises with cooperating agency crews.

Throughout the year, as individual training needs and course offerings coincide, the staff will make efforts to fulfill training goals.

Departmental policy requires that all personnel engaged in suppression and prescribed fire duties meet the standards set by the National Wildfire Coordinating Group (NWCG). The LPO will

conform strictly to the requirements of the wildland fire management qualification and certification system and USFWS guidelines.

Basic wildland fire training refreshers are offered annually for red-carded firefighters and records kept in the Interagency Qualifications and Certification System (IQCS). Training and Qualification paper files are stored with the training officer Complex Headquarters office.

In addition to local training, training is available through the Eastern Washington Interagency Training Zone as well as the PNW Training Center, in pump and engine operation, power saws, firefighter safety, fire weather and fire behavior, helicopter safety and prescribed fire objectives and activities. On-the job training is encouraged and will be conducted at the field level. The complex training officer will coordinate fire training needs with those of other nearby refuges, cooperating agencies, and the RO.

The refuge supports the development of individual Incident Command System (ICS) overhead personnel from among qualified and experienced refuge staff for assignment to overhead teams at the local, regional, and national level.

Fire suppression is an arduous duty. On prescribed fires, personnel may be required to shift from implementation/monitoring activities to suppression. Personnel working on prescribed fire assignments are required to maintain an arduous fitness rating for any position which normally requires it. Other fitness levels are required as appropriate to the position.

Current fire qualifications can be found in Appendix B.

4.1.4 Dispatch, Initial Response

Dispatch

All reports of wildfire and resource requests will be processed by the Northeast Washington Interagency Communications Center (NEWICC).

NEWICC Dispatch will contact the refuge for assistance with wildland fires within the lands surrounding the refuge, including the Colville NF and lands managed by Washington DNR. The refuge FMO has the discretion to approve or deny requests based on staffing needs.

The National Interagency Mobilization Guide, which is revised annually, clearly describes interagency mobilization and dispatch procedures at all preparedness levels. Its directives will be followed on the refuge for all wildland fire operations.

Communications

The LPO utilizes both the Colville NF and the WA DNR Northeast communications systems, including repeaters and radio frequencies. Appendix L contains the Radio Frequencies. All communications equipment is analog.

Initial Response

Upon discovery of a fire, the following actions are standard operating procedure:

1. The Incident Commander (IC) will locate, size-up, and coordinate suppression actions.
2. Provision for firefighter and public safety is top priority.
3. Considering the current and predicted fire conditions, the Incident Commander will assess the need for additional suppression resources and estimate the final size of the fire. The potential for spread outside of the refuge should be predicted, as well as the total suppression force required to initiate effective containment action at the beginning of each burning period.
4. The Incident Commander will assess the need for law enforcement personnel for traffic control, investigations, evacuations, etc., and make the request to the FMO or Dispatch as appropriate.
5. Document decisions.
6. Should a wildfire move into an extended attack a Delegation of Authority will be invoked. Once a Delegation of Authority has been authorized the Incident Commander will make the final decisions pertaining to the fire. A copy of Delegation of Authority is in Appendix M. NEWICC will handle expanded dispatch.

4.1.5 Extended Attack and Large Fire Management

For fires that cannot be contained in one burning period, a Wildfire Decision Support System (WFDSS) analysis must be prepared. The purpose of the WFDSS analysis is to allow for a consideration of alternatives by which a fire may be controlled

Extended attack fires will be managed in accordance with the Interagency Standards for Fire and Aviation Operations (Redbook).

Public safety will require coordination between all refuge staff and the IC. Notices may be posted to warn visitors, trails may be closed, and traffic limited. Where wildland fires cross roads, the burned area adjacent to the road should be mopped up and dangerous snags felled. Every attempt will be made to utilize natural and constructed barriers, including changing fuel complexes, in the control of wildland fire. Rehabilitation efforts will concentrate on the damages done by suppression activities rather than on the burned area itself.

4.1.6 Aviation Operations

All fire related aviation operations will follow applicable guidelines of the DOI National Business Center – Aviation Management Directorate.

Aircraft/Unmanned Aircraft Systems (UAS) may be used in all phases of wildland fire management operations including prescribed fire.

Helicopters may be used for reconnaissance, bucket drops and transportation of personnel and equipment. Suitable helispots are readily available in most cases, or can be established in existing openings. Clearing for new helispots should be avoided where possible. Improved helispots will be rehabilitated following the fire.

4.1.7 Reviews and Investigations

Reviews and investigations are used by wildland fire and aviation managers to assess and improve the effectiveness and safety of organizational operations. Brief descriptions of various

reviews and associated procedures and requirements, including those for serious wildland fire accidents, entrapments, and fire trespass are listed in the Red Book Chapter 18.

Incident Commanders and Single Resource Bosses will ensure AARs take place in a timely manner and that any significant issues are brought to the attention of the Zone FMO or Refuge Manager.

Investigation

Fire management personnel will attempt to locate and protect the probable point of origin and record pertinent information required to determine fire cause. They will be alert for possible evidence, protect the scene and report findings to the fireline supervisor.

Prompt and efficient investigation of all suspicious fires will be carried out. However, fire management personnel should not question suspects or pursue the fire investigation unless they are currently law enforcement commission qualified.

Personnel and services of other agencies may be utilized to investigate wildland fire arson or fire incidents involving structures. NEWICC will be the contact for ordering needed resources.

4.1.8 Reports

The refuge staff will contact the Duty Officer, who will complete and file an Individual Fire Report (FMIS)⁴ for the following types of fires within 10 days of a fire being declared out:

- All wildfires on FWS and FWS-protected lands.
- Wildfires threatening our lands on which we take action.
- All escaped prescribed fires. When a fire exceeds prescription, it must be declared a wildfire, and a separate new report filed to report acres burned by the wildfire from the time of declaration to the time of being declared out.
- All false alarms responded to by field office staff.

FMIS reports are required regardless of who takes action, e.g., FWS engine, cooperators, or contractor. When we take initial attack off our lands, the agency with jurisdiction where the fire occurs will file a report and we will file a limited report to document our response and to support potential billing to non-federal entities for trespass fires.

4.2 Hazardous Fuels Management.

Perhaps more than any other single event, wildland fire has shaped and profiled the character of our forest. Anthropogenic and lightning-caused fire burned through virtually the entire area of the Refuge prior to the influence of early pioneers. The adaptation of forest ecosystems to natural fire on the LPO NWR provides the key to the use of prescribed fire to accomplish many habitat related management goals. Fire will be used to restore and maintain the natural balance to the ecosystem which has been absent because of fire exclusion. Specifically fire will be important in restoring the mature and old growth components of the ponderosa pine and dry Douglas-fir stands and in maintaining the vital deer winter range in a high quality condition. For

⁴ FMIS, the US Fish and Wildlife Service's Fire Management Information System, has replaced the old DI-1202 fire report.

details refer to the Comprehensive Conservation Management Plan and the Forest Habitat Management Plan.

The CCP covers the dry, moist and cold forest regions of the LPO and it is expected that management activities will include prescribed burns throughout the refuge over the years this plan will be in effect. The thrust of management on the LPO, as it relates to fire, will be to strive for native diversity of existing forest habitats and enhance those elements which have been degraded or lost through past activities such as removal of the mature and old growth forests through land clearing and timber harvest.

Natural fire has played an important role in the Columbia Basin Ecosystem and in particular the dry forests as described in the CCP. The role of fire will be continued with prescribed fire being used to simulate the effect of natural fire in habitat management.

As greater numbers of acres are conditioned for a return of fire, increasing acres of the Refuge will fall under a planned burning schedule. Burning will be guided by two primary tenets; A. Hazard Reduction and B. Resource Management. The Little Pend Oreille has two burning seasons. One is in the spring, usually April and May, and the other is in the fall, September and October. For both of these seasons there is a short period of time when the burn will be in prescription, so the actual burning window usually totals just a week each season.

Details of specific prescribed burns can be found in the respective prescribed burn plans. These plans will have the individual prescriptions for each burn unit planned for any given year. Planned fuels treatments for a given fiscal year may be found in the NFPORS data base. Backlog burn acres, those prescriptions which are not accomplished in the scheduled year, will become part of the succeeding year's plan if appropriate.

Burn complexity will vary from relatively simple in grass fuels, to moderate or high complexity under forest canopies where it is desirable to limit scorch heights, tree mortality and duff reduction. Ignitions will take advantage of hand firing, in most cases, because of tree canopies and to maintain better control of fire intensities. Hand firing, as opposed to aerial ignitions, will lower complexities and enhance our ability to control intensities and achieve desired results. It would be rare for the staff to attempt to burn more than one unit simultaneously; however some of the forested units may be as large as 600 to 700 acres.

4.2.1. Prescribed Fire Program for Hazardous Fuels and Habitats

The refuge prescribed fire program will be conducted in accordance with policy set forth in the Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide (2013), and the corresponding chapters of the FWS Fire Management Handbook and Interagency Standards for Fire and Fire Aviation Operations.

4.2.1.1. Program Overview

Prescribed fire can be a useful tool for restoring and maintaining natural conditions and processes at LPO. Research burning may also be conducted when determined to be necessary for accomplishment of research project objectives. The goals of prescribed fire are for hazard

fuel reduction and to meet resource management objectives. Specific management needs for the refuge will be determined annually. Burn objectives, fire frequency rotation, firing methodology, and prescriptions will vary from year to year. Burn plans will be updated to reflect any variations. The Agency Administrator will approve prescribed fire plans.

Hazardous Fuels Strategy

Initially, most burning will be done to reduce fuel hazards, enhance deer winter range and establish a baseline of information (post-burn evaluations) which will facilitate future prescribed burn planning. Part of the strategy in selecting burn units will be to break fuel continuity at strategic points to expedite suppression of wildland fires. As the dynamics of burning the refuge's variety of forest habitats becomes better understood, in relation to the objectives and goals described in the CCP, it is anticipated that regular maintenance burning will become routine. At that time, while hazard reduction burning will always play a significant role in the fire program, resource burning will become of increasing concern as a method to achieve goals and maintain forest health. This is especially true in the ponderosa pine (dry forest type) of which only 3.9 % is in protected status managed primarily for biodiversity. Of this remaining habitat only a fraction remains in the old growth forest succession stage. It is a primary goal of this refuge to restore a significant amount of ponderosa pine to its mature state.

Refuge planning documents (CCP and HMP) indicate we will strive to treat approximately 1000 acres per year in a variety of vegetation types, using a variety of methods all designed to restore natural processes with an emphasis on the use of fire. Hazardous fuels activities may include mechanical treatments (e.g., thinning), burning, and monitoring.

Some specific objectives for the refuge program, *commensurate with funding and staffing*, include:

- Conduct a vigorous prescribed fire and fuels management program with the highest professional and technological standards
- Identify the prescribed burn prescriptions most appropriate to specific situations and areas
- Efficiently accomplish resource management objectives through the application of prescribed fire and mechanical methods of fuels treatment
- Continually evaluate the prescribed fire and fuels management program to better meet program goals by refining prescriptions treatments and monitoring methods, and by integrating applicable technical and scientific advancements

4.2.1.2. Effect of National and Regional Preparedness Levels

Prescribed fires may be ignited during National Preparedness Level 4 or 5 as specified in the National Interagency Mobilization Guide.

4.2.1.3. Project Planning

Annually fire management and refuge staff will meet to discuss refuge priorities and update a 3 year program of work (POW). This will be part of the process to identify funding and work force needs for projects.

Complex fire management staff assigned fuels projects may conduct field reconnaissance of proposed projects with the refuge biologist, and/or Refuge Manager to discuss objectives, special concerns, and gather information to draft any planning documents, such as scope of work, burn plan etc. .

All prescribed fires will have prescribed burn plans. The prescribed burn plan is a site specific action plan describing the approvals, purpose, objectives, prescription, and operational procedures needed to prepare and safely conduct the burn. The treatment area, objectives, constraints, and alternatives will be clearly outlined. No burn will be ignited unless all prescriptions of the plan are met or amendments and or modifications are drafted to deviations from the original plan. Fires not within those parameters will be suppressed. Prescribed Burn Plans will follow the Interagency Prescribed Burn Plan Template as detailed in the Interagency Prescribed Fire Implementation Guide (2013). This Fire Management Plan is by reference a step-down plan to the refuge CCP. Compliance with the National Environmental Policy Act results from the CCP Environmental Impact Statement. The term “burn unit” refers to a specific tract of land to which a prescribed burn plan applies.

4.2.1.4. Project Implementation

Cooperators, contractors, and casual hires (AD) may be used to implement prescribed fires. All resources must meet PMS-310-1 <https://www.nwcg.gov/sites/default/files/publications/pms310-1.pdf> .

Personnel will follow agency policy for wildfire declaration found in the FWS Fire Management Handbook <https://www.fws.gov/fire/handbook/>

Interagency Fire and Aviation Hand Book
<https://www.nifc.gov/PUBLICATIONS/redbook/2020/RedBookAll.pdf>

The public will be informed of prescribed fires through news releases, interpretive messages, and educational programs. Individual prescribed fires should not be conducted without informing those agencies and members of the public likely to be impacted.

The prescribed burn program actions include: the selection and prioritization of prescribed burns to be carried out during the year, prescribed burn plans, burn prescriptions, burn operations, documentation and reporting, and burn critiques.

Annual Activities

Prescribed fire activities will be reviewed annually by the fire management staff, Refuge Manager, and Resource Specialist. Necessary updates or changes to the Fire Management Plan will be accomplished prior to the next fire season. Any additions, deletions, or changes will be reviewed by the Refuge Manager to determine if such alterations warrant a re-approval of the plan.

Monitoring and Evaluation

At a minimum treatment reporting will be completed in FMIS for all projects. For prescribed fire projects, broadcast and pile burns, weather observations will be recorded per the burn plan and retained in the project file. Dependent on program capacity (funding & personnel) some

additional short term and long term monitoring may occur. Required monitoring guidance will come from Complex fuels personnel. Any additional monitoring, .i.e. photo points transects etc. will use standard practices and measurements.

4.2.1.5. Smoke Management

The Little Pend Oreille is required to obtain burn clearance from the Department of Natural Resources prior to the implementation of the burn. The clearance procedure is used to ensure that weather conditions on the day of the planned burn are conducive to good smoke dispersal conditions (no inversions and wind directions which will carry the smoke away from populated areas). It also allows coordination of burns between agencies and private interests to prevent too many burns from being conducted simultaneously within the same air-shed.

Under the direction of the federal Clean Air Act, The Washington State guidelines as described in the State of Washington Smoke Management Plan (Plan) will be adhered to. A copy of this Plan is on file at the refuge office and may be reviewed in conjunction with this document. Copies are also available from the Washington Department of Natural Resources (DNR).

Advance notice will be provided to the Washington DNR Regional Office of the intent to burn, proposed date, expected duration, smoke impact areas and estimated tonnages of fuel expected to be consumed. This will be done via requesting procedures provided by the DNR

All prescriptions will contain a section detailing how to request approval for smoke, smoke management concerns and mitigation efforts.

The Little Pend Oreille NWR lies to the east of Colville, Washington. Air quality in this area is generally considered excellent. Occasional impacts occur because of smoke from wildland fires and debris/waste burning from local landowners. Air quality monitoring stations have not been established in this area. Consequently, existing air quality data for the area does not exist. Generally short term degradation in air quality is associated with prescribed fire activities. No known record of adverse impact of air quality has ever been filed due to prescribed fire activities in the area.

The general meteorology of wind patterns in this area fluctuate on a diurnal and seasonal pattern. Daytime ridge top winds are usually southwest during the burning season. This prevailing wind pushes smoke particulates to the northeast. Nighttime winds are generally light and down slope/down valley, causing particulates to move down the Little Pend Oreille drainage.

Part of the federal Clean Air Act, as revised in 1991, is a legal mandate designed to protect human health and welfare from air pollution. The act defines Natural Ambient Air Quality Standards (NAAQS) as levels of pollutant above which detrimental effects on human health and welfare could occur.

The nearest federally designated Class I area (all national wilderness areas larger than 5,000 acres) is the 4,557 acre Kalispel Tribe reservation near Usk Washington, approximately 30 air miles SE of Little Pend Oreille headquarters office, the next closest is the Pasayten Wilderness. The Pasayten Wilderness is located approximately 90 air miles to the west.

The city of Spokane is located approximately 80 miles to the south of the refuge and, until recently, was a federal non-attainment area. A non - attainment area is defined in the Washington State Smoke Management Plan, as a clearly delineated geographic area that has been designated by the Environmental Protection Agency as exceeding a national ambient air quality standard or standards for one or more of the criteria pollutants.

Burning when smoke dispersion conditions are favorable and in compliance with daily Washington State smoke management direction would minimize any adverse effects. All burning would be scheduled in conjunction with the State of Washington to comply with the State Implementation Plan to minimize adverse effects on air quality.

A good working relationship between the Fish and Wildlife Service, other Federal and State land management agencies, and interstate, state, and local air quality officials will help assure that both air quality control and fire management objectives are met with the least amount of conflict.

Shortly before prescribed burns are anticipated and during natural fires for resource benefits, information will be made available to state contacts, refuge visitors, local citizenry, and the press about what is happening on the refuge. On - site information will also be used to alleviate visitor concern about the apparent destruction of refuge resources by fire or impairment of views due to temporary smoke.

Prescribed fire plans will describe actions which may be used to keep the fire within prescription for air quality objectives, particularly when smoke dispersion is deteriorating to the point that it is possible that smoke and air quality objectives will no longer be achieved. Examples may include:

- A. Using firing crews to ignite fuels so that the fuels burn with the flaming rather than with smoldering combustion.
- B. Cessation of ignition and construction of fire lines to halt fire spread.
- C. Mopping up smoldering heavy fuels until conditions improve for smoke dispersion, at which time the fire may be reignited.
- D. Using water delivery systems to wet fuels to extinguish all or a portion of the fire front, with possible subsequent re-ignition under prescribed dispersal conditions.

Some principles used to guide smoke management planning are:

- A. Obtain and use weather forecasts.
- B. Burn when conditions are good for rapid dispersion.
- C. Determine the direction and volume of smoke.
- D. Notify local fire dispatch office, nearby residents, and adjacent landowners.
- E. Use test fires to confirm smoke behavior.
- F. Mop - up along roads.
- G. Burn when duff and soil moistures are high to prevent smoldering ground fires.
- H. Anticipate down - drainage flow, particularly at night.
- I. Observing and recording on-site weather conditions at regular intervals

4.2.1.6. After Action and Escaped Fire Reviews

The Burn Boss will ensure an informal After Action Review (AAR) is conducted for each operational period on a prescribed fire, as outlined in the Red Book. A post season critique of the prescribed fire program will be held following the completion of operations for the year.

All prescribed fires declared a wildfire will have an investigative review initiated by the Refuge Manager or Project Leader. The level and scope of the review will be determined by policy and procedures of the Red Book and the FWS Fire Management Handbook.

4.2.1.7. Reports

Burn Plans will specify information to be included in a project file and who the information is provided to. The Burn Boss will ensure this information is submitted to the correct point of contact.

The Burn Boss will coordinate with Complex fuels personnel to complete any required reporting for projects. The update of FMIS and NFPORS databases is the responsibility of fuels program personnel.

4.3 Emergency Stabilization and Rehabilitation

Required repair of damage resulting from suppression activities will be completed before crews and resources are released from assignment to the incident.

Rehabilitation and restoration efforts will be undertaken to protect and sustain ecosystems, public health, safety, and to help communities protect infrastructure. Natural recovery is the preferred ES or BAR treatment.

When suppression action is taken, rehabilitation is appropriate. The most effective rehabilitation measure is prevention of impacts through careful planning and the use of minimum impact suppression techniques.

Rehabilitation will be initiated and monitored by the Incident Commander, FMO, or Refuge Manager. Rehabilitation will be directed toward minimizing or eliminating the effects of the suppression effort and reducing the potential hazards caused by the fire. These actions may include:

- A. Backfill control lines, scarify, and seed.
- B. Install water bars and construct drain dips on control lines to prevent erosion.
- C. Install check dams to reduce erosion potential in drainages.
- D. Restore natural ground contours.
- E. Remove all flagging, equipment and litter.
- F. Completely restore camping areas and improved helispots.
- G. Consider and plan more extensive rehabilitation or re-vegetation to restore sensitive impacted areas.

If re-vegetation or seeding is necessary, only native plant species will be used.

Sites impacted by fire suppression activities or by the fire will be rehabilitated as necessary, based on an approved course of action for each incident. If emergency rehabilitation measures are needed or if rehabilitation is needed to reduce the effects of a wildland fire then the refuge

can request appropriate funding through the Burned Area Emergency Rehabilitation (BAER) fund.

Rehabilitation plans for each fire will be reviewed by the Fire Analysis Committee. A final plan will be submitted to Region (or NIFC if more than \$250,000) for establishing an account. Rehabilitation should be initiated following guidelines outlined in the Fire Management Handbook.

All wildland fires will be rehabilitated following the control of the fire. Items that will be considered as to how extensive the rehabilitation will be are: 1) Location and size, 2) Soils, 3) Topography, 4) Climate, 5) Vegetation prior to the fire, 6) Intensity of the fire, 7) Hydrology, and 8) Land ownerships involved.

4.4 Prevention, Mitigation and Education

An active fire prevention program will be conducted in conjunction with other agencies to protect human life and property, and prevent damage to cultural resources or physical facilities.

A program of internal and external education regarding potential fire danger will be implemented. Visitor contacts, bulletin board materials, handouts and interpretive programs may be utilized to increase visitor and neighbor awareness of fire hazards. Trained employees need to relate to the public the beneficial effects of prescribed fires as opposed to unwanted human-caused fires, with emphasis on information, essential to understanding the potential severity of human-caused wildland fires and how to prevent them.

It is essential that employees be well informed about fire prevention and the objectives of the refuge's fire management program. Further, employees must be kept informed about changes in existing conditions throughout the fire season.

During periods of extreme or prolonged fire danger emergency restrictions regarding refuge operations or area closures may become necessary. Such restrictions, when imposed, will usually be consistent with those implemented by cooperators. The Fire Management Officer will recommend when such restrictions are necessary. Closures will be authorized by the Refuge Manager.

The fire prevention program on the refuge is geared toward increasing public awareness of wildland fire prevention by providing information, instruction and reminders of its importance. The best way to reach the visitors to the refuge is through the use of a sign plan.

The intent of the sign plan is to give an overview of the fire prevention signs used on the refuge and direction of when they need to be in place. Signing is one of the most valuable means of informing the public of fire danger of reminding them of regulations of restrictions.

The Little Pend Oreille signs fall into three general categories: 1) Industrial Fire Precaution Level signs, 2) Fire Prevention (refuge entry road) signs and 3) Campground signs.

- A. Industrial Fire Precaution Level signs are to notify industrial users of the refuge changes in the industrial fire precaution level (IFPL) and fire danger. This has ramifications on refuge use, especially to woodcutters, loggers and other industrial users. IFPL's and fire danger adjectives are generated by fire danger conditions. The refuge will be notified by the Colville National Forest Dispatch office when there is a change in the IFPL. The IFPL sign must be changed the same date as the notification.
- B. Fire Prevention (refuge entry) signs are located on the main roads entering the refuge. These signs are designed to be visible to the casual observer without detracting from the beauty of the refuge. Poster signs are stapled to the front and back with messages on them as appropriate to the season or fire danger. These messages rotate as the fire danger and weather conditions dictate.
- C. Campgrounds are also signed with messages appropriate to the season or fire danger.

Safety is the number one priority, whether for the public or for refuge workers. Signing will be done when there is high fire danger. Precautions will be taken to inform the public and restrict open burning or other fire uses as needed. For prescribed fires, roads potentially affected by surface smoke will be signed with hazard notifications and patrolled during and after the burn until visibility is safe for traffic. In addition, potentially affected individuals will be notified prior to the implementation of the prescribed fire.

The responsibility for maintaining and rotating messages on the prevention signs will be the engine captain's. The engine captain will utilize the engine crews to post, repair and maintain signs. The prevention signs will be stored in the fire cache. Each engine will carry a couple of signs in order to replace ones they find damaged or missing .

Information and Education

People who live in this area are used to prescribed burning by the surrounding land owners. These owners include small private forest land holders, large timber corporations, State lands, tribal lands and large federal landowners all of which practice prescribed burning. Nevertheless, public concerns may arise as a result of smoke from wildland burning, or from a general fear of forest fires. These concerns have routinely been addressed in the many public meetings that have been held in conjunction with the development of the refuge CCP of which the earlier version of the FMP is attached as an Appendix.

The public will be notified of planned prescribed burning in advance of any actions and posting of information and educational materials at various refuge locations such as campgrounds and kiosks throughout the refuge is the current routine. The refuge and the Colville NF also act in concert regarding fire danger ratings and the use of fire by visitors during periods of high fire danger.

5.0 Monitoring and Evaluation

5.1. Fire Management Plan

5.1.1. Annual FMP Review

This FMP will be reviewed annually and updated as needed. Revisions of FMPs with Regional review and concurrence are required following completion of a new (or significantly revised) CCP or habitat management plan.

5.1.2. Fire Management Plan Terminology

Terms in the FMP are defined in the National Wildfire Coordinating Group glossary, located at <http://www.nwccg.gov/pms/pubs/glossary>. Any terms used not in the glossary are defined below or in footnotes.

5.2 Treatment Effectiveness

Objectives and protocols for monitoring prescribed fire effectiveness are contained in the Refuge Fire Monitoring Plan available at Refuge office.

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